

What is claimed is:

1. A liquid processing apparatus comprising:

a processing container formed so as to surround a processing chamber in which one or more substrates to be processed are accommodated;

a nozzle for supplying the substrates with a processing liquid thereby to carry out a liquid process, the nozzle having ejecting orifices to eject the processing liquid in the form of a plane.

2. A liquid processing apparatus as claimed in Claim 1, wherein

the substrates consist of a plurality of substrates whose processing surfaces to be processed thereon are arranged generally parallel with each other; and

the ejecting orifices are juxtaposed with the plural substrates.

3. A liquid processing apparatus as claimed in Claim 2, wherein

the substrates are arranged so as to be rotatable about substantial centers thereof.

4. A liquid processing apparatus as claimed in Claim 2, wherein

the ejecting orifices are provided for the plural substrates, one by one.

5. A liquid processing apparatus as claimed in Claim 2, wherein

the plural substrates are arranged in a manner that the two adjoining substrates in pairs have the processing surfaces facing each other; and

the ejecting orifices are arranged one to the pair of substrates having the processing surfaces facing each other.

6. A liquid processing apparatus as claimed in Claim 2, wherein

the nozzle is formed so as to eject the processing liquid among the plural substrates.

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7. A liquid processing apparatus as claimed in Claim 3, wherein
the nozzle is formed so as to eject the processing liquid obliquely to the processing surfaces of the plural substrates and also hit the processing liquid on substantial centers of the substrates.
8. A liquid processing apparatus as claimed in Claim 2, wherein
the ejecting orifices are separated from the processing surfaces of the substrates in a direction perpendicular to the processing surfaces and also positioned radially outside of the substrates.
9. A liquid processing apparatus as claimed in Claim 1, wherein
the ejecting orifices are formed so as to eject the processing liquid in a substantially fan-shaped pattern.
10. A liquid processing apparatus as claimed in Claim 7, wherein
each of the substrates is in the form of a circular plate;
and
the processing liquid is ejected against each processing surface of the substrates so that a width of the plane-ejected processing liquid is generally equal to the diameter of the substrate, on the processing surface.
11. A liquid processing apparatus as claimed in Claim 7, wherein
the nozzle comprises:
a nozzle body provided with a plurality of pedestals formed corresponding to the substrates to be processed; and
nozzle members attached to the plural pedestals, the nozzle member having the ejecting orifices formed therein; wherein
the pedestals are formed to incline so that the nozzle members can eject the processing liquid obliquely to the processing surfaces of the substrates.
12. A liquid processing apparatus as claimed in Claim 7, wherein
the nozzle has a nozzle body having the ejecting orifices formed therein, the ejecting orifices being inclined so as to

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eject the processing liquid obliquely to the processing surfaces of the substrates.

13. A liquid processing apparatus as claimed in Claim 4, wherein the ejecting orifices comprise:

- a plurality of main ejecting orifices arranged so as to correspond to the plural substrates respectively; and

. extra ejecting orifices arranged further outside of the outermost ones of the main ejecting orifices.

14. A liquid processing apparatus as claimed in Claim 4, wherein the nozzle includes a first nozzle and a second nozzle both of which are separated from each other in the circumferential direction of the substrates, the first nozzle having a plurality of first ejecting orifices to eject the processing liquid to alternately-positioned ones of the plural substrates to be processed, and the second nozzle having a plurality of second ejecting orifices to eject the processing liquid to alternately-positioned ones of the plural substrates except the alternately-positioned substrates charged by the first nozzle.

15. A liquid processing apparatus as claimed in Claim 2, wherein the ejecting orifices are arranged in a space above a horizontal plane including central axes of the substrates to be processed and also arranged in respective positions excluding an upper-projected space of the substrates.

16. A liquid processing apparatus as claimed in Claim 1, wherein the processing container includes a lower portion which is formed to have an inner face with an inclination intersecting the horizontal direction at an angle more than 5 degrees.

17. A liquid processing apparatus as claimed in Claim 1, wherein the nozzle has an inside nozzle passage providing the ejecting orifice with the processing liquid, a sectional shape of the inside nozzle passage being rectangular.

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18. A liquid processing apparatus comprising:

a wafer holding member for holding a plurality of wafers;
a circular plate on which the wafer holding member is built;
a processing container for accommodating the circular plate and the wafer holding member therein; and

an ejecting orifice formed on an inner face of the processing container so as to face the circular plate, for supplying a processing liquid to the circular plate's surface facing the inner face of the processing container.

19. A liquid processing method for supplying a substrate retained in a processing container with a processing liquid while using a nozzle having an ejecting orifice formed to eject the processing liquid in a plane, the method comprising the step of ejecting the processing liquid obliquely to a processing surface of the substrate and toward a substantial center of the processing surface.

20. A liquid processing method for supplying a substrate retained in a processing container with a processing liquid while using a nozzle having an ejecting orifice formed to eject the processing liquid in a plane, the method comprising the step of ejecting the processing liquid adjacently to the substrate and along a processing surface of the substrate.

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